REMARKS

Claims 1-11, 21, 22 and 25-30 are pending in this application. Claims 1 and 22 have been amended by the present Amendment. No new matter is added by the amendments to claims 1 and 22.

REJECTIONS UNDER 35 U.S.C. § 112

First Paragraph

Reconsideration is respectfully requested of the rejection of claims 1-11, 21-22 and 25-30 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement.

The Examiner maintains that "the requirement [in claims 1 and 22] that each unit is spaced apart from a previous head unit by a predetermined distance, wherein a multiple of the predetermined distance being the pitch and the pitch is greater than the predetermined distance is a new matter."

Applicants respectfully disagree with the Examiner and have amended claims 1 and 22 to further clarify that the added phrases to claims 1 and 22 do not constitute new matter.

Claim 1, as amended, recites "each head unit . . . is fixed in a position spaced apart from a previous head unit by a predetermined horizontal shift distance, wherein . . . a multiple of the predetermined horizontal shift distance being substantially identical to the pitch, whereby the pitch is greater than the predetermined horizontal shift distance."

Claim 22, as amended, recites "each head unit being disposed in a position spaced apart from a previous head unit by a predetermined horizontal shift distance, wherein . . . the spraying nozzles . . . have a pitch between neighboring spraying

nozzles, the pitch being substantially identical to n times the predetermined horizontal shift distance."

Referring, for example, to FIGS. 3-4 of Applicants' disclosure, the head units are shown as reference numerals 300-1 . . . 300-n. Each successive head unit is fixed in a position spaced apart from a previous head unit by a horizontal shift distance d, which is less than a pitch (e.g., 140 μm) between nozzles 400.

In addition, Applicants' disclosure states that first to n-th head units are formed in first to n-th rows, respectively, and shifted in sequence by horizontal distances d_1 to $(n-1) \times d_1$, wherein n is the number of head units. See Applicants' disclosure, ¶¶ 0045 and 0056.

Applicants submit that the amendments to claims 1 and 22 do not add new matter to the application because the specification provides an enabled description of the head units so positioned.

Applicants, therefore, respectfully request that the Examiner's rejection under 35 U.S.C. § 112, first paragraph, be withdrawn.

Second Paragraph

Reconsideration is respectfully requested of the rejection of claims 1-11, 21-22 and 25-30 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The Examiner maintains that in claims 1 and 22, "it is unclear what/which spacing distance is considered to be a predetermined distance between the head units", and that "[t]here is no indication to the distance (spacing) measurement taken place

between the neighboring heads (horizontally or vertically from each other) in any of the drawings."

Applicants respectfully disagree with the Examiner and have amended claims 1 and 22 to further clarify that the added phrases to claims 1 and 22 are not indefinite.

As stated above, claim 1, as amended, recites "each head unit . . . is fixed in a position spaced apart from a previous head unit by a predetermined horizontal shift distance".

Similarly, claim 22, as amended, recites "each head unit being disposed in a position spaced apart from a previous head unit by a predetermined horizontal shift distance".

The Examiner is incorrectly interpreting the term "shifted" as not supporting "spaced apart". It is clear from Applicants' disclosure that "shifted" is being used to indicate that each respective head unit is positioned a horizontal distance d over from a previous head unit. For example, Applicants' disclosure states that first to n-th head units are formed in first to n-th rows, respectively, and shifted in sequence by horizontal distances d_1 to (n-1) x d_1, wherein n is the number of head units. See Applicants' disclosure, ¶¶ 0045 and 0056.

Further, FIGS. 3-4 of Applicants' disclosure clearly show the head units 300-1 . . . 300-n, wherein each successive head unit is fixed in a position spaced apart from a previous head unit by a horizontal shift distance d, which is less than a pitch (e.g., 140 μm) between nozzles 400. Indeed, the Applicants' specification fully supports this reading of FIGS. 3-4. For example, there is no disclosure regarding movement of individual head units, and Applicants disclose an embodiment where the spraying

device 240 remains fixed while the stage 210 is transferred. See, e.g., Applicants' disclosure, Fig. 8 and ¶ 0083; see also claim 10 (stating "the spraying device is fixed").

Accordingly, Applicants submit that claims 1 and 22, as amended, are not indefinite.

Applicants, therefore, respectfully request that the Examiner's rejection under 35 U.S.C. § 112, second paragraph, be withdrawn.

REJECTIONS UNDER 35 U.S.C. § 102

Kawase '332

Reconsideration is respectfully requested of the rejection of claims 1, 3-9, 21 and 29 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,660,332 ("Kawase '332").

Applicants respectfully submit that Kawase '332 at least fails to disclose all of the elements of claim 1.

A rejection for anticipation under section 102 requires that the four corners of a single prior art document describe every element of the claimed invention, either expressly or inherently, such that a person of ordinary skill in the art could practice the invention without undue experimentation. In re Paulsen, 30 F.3d 1475, 1478-79, 31 U.S.P.Q.2d. 1671, 1673 (Fed. Cir. 1994). "The identical invention must be shown in as complete detail as is contained in the . . . claim." Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1236, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989); M.P.E.P. § 2131.

Claim 1, inter alia, recites:

"a plurality of head units each formed in a corresponding row, wherein each head unit . . . is fixed in a position spaced apart from a previous head unit by a predetermined

horizontal shift distance, wherein . . . a multiple of the predetermined horizontal shift distance being substantially identical to the pitch, whereby the pitch is greater than the predetermined horizontal shift distance."

For example, referring to FIGS. 3-4 of Applicants' disclosure, the head units are shown as reference numerals 300-1 . . . 300-n. Each successive head unit is fixed in a position spaced apart from a previous head unit by a horizontal shift distance d, which is less than a pitch (e.g., 140 μm) between nozzles 400.

Kawase '332 Does Not Disclose "A Plurality Of Head Units Each Formed In A Corresponding Row"

The Examiner maintains that Kawase '332 discloses "a plurality of head units (ink-jet heads 22a-22k) forming a corresponding row". See September 26, 2006 Office Action at 3.

In contrast to the Examiner's contention, Kawase '332 discloses one inkjet head 22 that is moved to different positions (a) – (k). See Kawase '332 col. 13, lines 28-50. Kawase '332 repeatedly refers to a single inkjet head, not multiple inkjet heads formed in rows. Accordingly, Kawase '332 fails to disclose "a plurality of head units each formed in a corresponding row", as recited in claim 1.

For at least this reason, Kawase '332 does not anticipate claim 1.

Kawase '332 Fails To Disclose Each Head Unit Fixed In A Position Spaced Apart From A Previous Head Unit By A Predetermined Horizontal Shift Distance Wherein A Multiple Of The Shift Distance Is Substantially Identical To The Pitch

First, Applicants reiterate that Kawase '332 does not disclose "a plurality of head units", and, therefore, it is impossible to have each (more than one) head unit fixed in a position spaced apart from a previous head unit by a predetermined horizontal shift distance, as recited in claim 1. In addition, nowhere in Kawase '332 are there any

statements outlining a relationship between shift distance and nozzle pitch. Moreover, every visual reference to a difference from one position of the head unit 22 to another position of the same head unit 22 shows a difference of position which is greater than a pitch between nozzles, not less than a pitch between nozzles. See, e.g., Kawase '332, FIGS. 1-4.

Lastly, the Examiner maintains that Kawase '332 discloses a device that "is capable of shifting the plurality of head unit as desired, whereby a multiple of shift distance is capable of being identical to the pitch or the shift distance is less than the pitch".

The Examiner does not cite any support for this contention. Accordingly, the Examiner has not met the initial burden of establishing a prima facie case of anticipation of this claim element. The Examiner has not established by convincing reasoning or evidence that Kawase '332 anticipates the requirement that a multiple of the horizontal shift distance be substantially identical to the pitch, and that the pitch is greater than the horizontal shift distance.

Accordingly, Applicants respectfully submit that Kawase '332, at the very least, does not anticipate (1) a plurality of head units each formed in a corresponding row; and (2) each head unit fixed in a position spaced apart from a previous head unit by a predetermined horizontal shift distance wherein a multiple of the shift distance is substantially identical to the pitch, as recited in claim 1.

Therefore, Applicants respectfully submit that claim 1 is not anticipated by Kawase '332. In addition, for at least the reason that claims 3-9, 21 and 29 depend from claim 1, claims 3-9, 21 and 29 are also not anticipated by the cited reference.

As such, Applicants respectfully request that the Examiner withdraw the rejection of claims 1, 3-9, 21 and 29 under 35 U.S.C. § 102(b).

Kawase '613

Reconsideration is respectfully requested of the rejection of claims 1-9, 21-22, 25-28 and 30 under 35 U.S.C. § 102(a) as being anticipated by U.S. Patent Application Publication No. US2003/0186613 ("Kawase '613").

Applicants respectfully submit that Kawase '613 at least fails to disclose all of the elements of claims 1 and 22.

As stated above, claim 1, inter alia, recites "each head unit . . . is fixed in a position spaced apart from a previous head unit by a predetermined horizontal shift distance, wherein . . . a multiple of the predetermined horizontal shift distance being substantially identical to the pitch, whereby the pitch is greater than the predetermined horizontal shift distance."

Claim 22, inter alia, recites "each head unit being disposed in a position spaced apart from a previous head unit by a predetermined horizontal shift distance, wherein . . . the spraying nozzles . . . have a pitch between neighboring spraying nozzles, the pitch being substantially identical to n times the predetermined horizontal shift distance."

For example, if a pitch between nozzles is 140 μm, and there are ten head units in rows 1 through 10 (n=10), then the predetermined horizontal shift distance between each head unit is 14 μm (n x d = 10 x 14 = 140 μm). See, e.g., Applicants' disclosure, page 12, lines 21-23; FIGS. 4 and 6.

Kawase '613 Fails To Disclose Each Head Unit Fixed Or Disposed In A Position Spaced Apart From A Previous Head Unit, Wherein A Multiple Of The Predetermined Horizontal Shift Distance (e.g., n times) Is Substantially Identical To The Pitch

The Examiner maintains that Kawase '613 discloses a device that "is capable of having a nozzle pitch equal to the shifting distance or n times the shifting predetermined distance by controlling movement of the head units." (emphasis added).

In contrast to the Examiner's contention, claims 1 and 22, as amended, recite that each head unit is fixed or disposed in a position spaced apart from a previous head unit by a predetermined horizontal shift distance, wherein a multiple of the predetermined horizontal shift distance (e.g., n times) is substantially identical to the pitch. Therefore, unlike Kawase '613, the relationship between the nozzle pitch and the shift distance is not arrived at by controlling movement of the head units. Indeed, the head units are fixed in the claimed positions on the spraying device 240.

As stated above, it is clear from Applicants' disclosure that "shifted" is being used to indicate that each respective head unit is positioned a horizontal distance d over from a previous head unit. See Applicants' disclosure, ¶¶ 0045 and 0056. Further, FIGS. 3-4 of Applicants' disclosure clearly show the head units 300-1 . . . 300-n, wherein each successive head unit is fixed in a position spaced apart from a previous head unit by a horizontal shift distance d, which is less than a pitch (e.g., 140 μm) between nozzles 400. There is no disclosure regarding movement of individual head units in Applicants' specification, and Applicants disclose an embodiment where the spraying device 240 remains fixed while the stage 210 is transferred. See, e.g., Applicants' disclosure, Fig. 8 and ¶ 0083; see also claim 10 (stating "the spraying device is fixed").

Further, Applicants note that Kawase '613 does not appear to include any

statements outlining a relationship between shift distance and nozzle pitch. Moreover, it appears that every visual reference to a difference between ejection start points of droplet ejection units (25A-25C) shows a difference which is greater than a pitch between nozzles, not less than a pitch between nozzles. See, e.g., Kawase '613, FIG. 9 (references P21, P22 and P23).

Indeed, a stated objective of Kawase '613 is to avoid overlap at ejection start and end points. See, e.g., Kawase '613, ¶¶ 0131-0132. Avoidance of overlap is obtained by the configurations, shown in, for example, Figs. 3, 4 and 9 of Kawase '613. There is no motivation to have pitch between nozzles that is greater than the shift distance (or n times the shift distance) because such a configuration results in the overlap that Kawase '613 seeks to avoid. Cf. Applicants' disclosure, page 12, lines 19-20 (seeking overlap of droplets).

Accordingly, Applicants respectfully submit that Kawase '613, at the very least, does not anticipate each head unit fixed or disposed in a position spaced apart from a previous head unit, wherein a multiple of the predetermined horizontal shift distance (e.g., n times) is substantially identical to the pitch, as recited in claims 1 and 22.

Therefore, Applicants respectfully submit that claims 1 and 22 are not anticipated by Kawase '613. In addition, for at least the reason that claims 2-9 and 21 depend from claim 1, and claims 25-28 and 30 depend from claim 22, claims 2-9, 21, 25-28 and 30 are also not anticipated by the cited reference.

As such, Applicants respectfully request that the Examiner withdraw the rejection of claims 1-9, 21-22, 25-28 and 30 under 35 U.S.C. § 102(a).

REJECTIONS UNDER 35 U.S.C. § 103(a)

Reconsideration is respectfully requested of the rejection of claims 10-11 under 35 U.S.C. § 103(a) as being unpatentable over (1) Kawase '332 as applied to claim 9 and further in view of European Patent Application Pub. No. EP 0754553 ("EP '553); and (2) Kawase '613 as applied to claim 9 and further in view of EP '553.

Applicants respectfully submit that Kawase '332 when taken alone or in combination with EP '553, and Kawase '613 when taken alone or in combination with EP '553, fail to teach or suggest each head unit that is fixed in a position spaced apart from a previous head unit by a predetermined horizontal shift distance, wherein a multiple of the predetermined horizontal shift distance is substantially identical to the pitch, whereby the pitch is greater than the predetermined horizontal shift distance, as recited in claim 1.

As stated above, neither Kawase '332 nor Kawase '613 teach this feature. Further, the addition of EP '553 does not render the claimed embodiment obvious. See Applicants' December 15, 2005 Amendment, at 7-8 (discussing EP'553 and its failure to disclose a pitch between nozzles which is greater than shift distance).

Therefore, it is respectfully submitted that the cited references, when taken alone or in combination, do not disclose or suggest the recited features of claim 1. Accordingly, it would not have been obvious to modify Kawase '332, as applied to claim 9 and further in view of EP '553, or to modify Kawase '613, as applied to claim 9 and further in view of EP '553, to develop the embodiment recited in claim 1.

As such, Applicants respectfully submit that claim 1 is patentable over (1) Kawase '332 as applied to claim 9 and further in view of EP '553; and (2) Kawase '613

as applied to claim 9 and further in view of EP '553.

For at least the reason that claims 10-11 depend from claim 1, claims 10-11 are also submitted to be patentably distinct over the cited references.

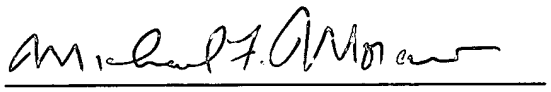
Therefore, Applicants respectfully request that the Examiner withdraw the rejections of claims 10-11 under 35 U.S.C. § 103(a) and that claims 10-11 are in condition for allowance.

DEPENDENT CLAIMS

Applicants have not independently addressed the rejections of all the dependent claims because Applicants submit that, for at least similar reasons as why the independent claims from which the dependent claims depend are believed allowable as discussed, supra, the dependent claims are also allowable. Applicants however, reserve the right to address any individual rejections of the dependent claims should such be necessary or appropriate.

An early and favorable reconsideration is earnestly solicited. If the Examiner has any further questions or comments, the Examiner may telephone Applicants' Attorney to reach a prompt disposition of this application.

Respectfully submitted,



Michael F. Morano
Reg. No. 44,952
Attorney for Applicants

F. CHAU & ASSOCIATES, LLC
130 Woodbury Road
Woodbury, NY 11797
(516) 692-8888